

# Standardized Patient Avatar for Reflective Communication Practice

*Enhancing Clinician Communication Through Reflective AI Practice*

Carma Bylund, Ph.D., Jason Dean Arnold, Ed.D., Stephanie Staras, Ph.D., Jay Rosen



**E-Learning, Technology  
and Communications**  
UF | COLLEGE OF EDUCATION

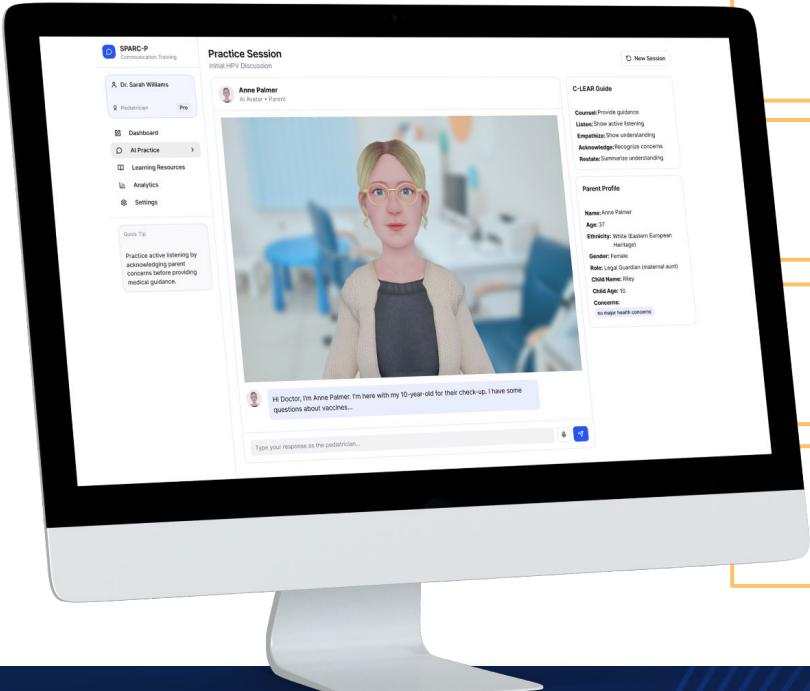


# Abstract

SPARC addresses the gap between evidence-based recommendations and real-world clinical communication. With an HPV vaccine use case, the project develops an AI-enabled training tool that simulates patient interactions to help clinicians practice communication strategies and receive real-time, evidence-based feedback.



# Abstract



AI-driven 3D avatars simulate patient encounters

Language models fine-tuned on clinician-patient dialogues

Multi-agent AI architecture ensures accuracy, safety, and feedback

Scalable, asynchronous, interactive learning environment

# The Challenge

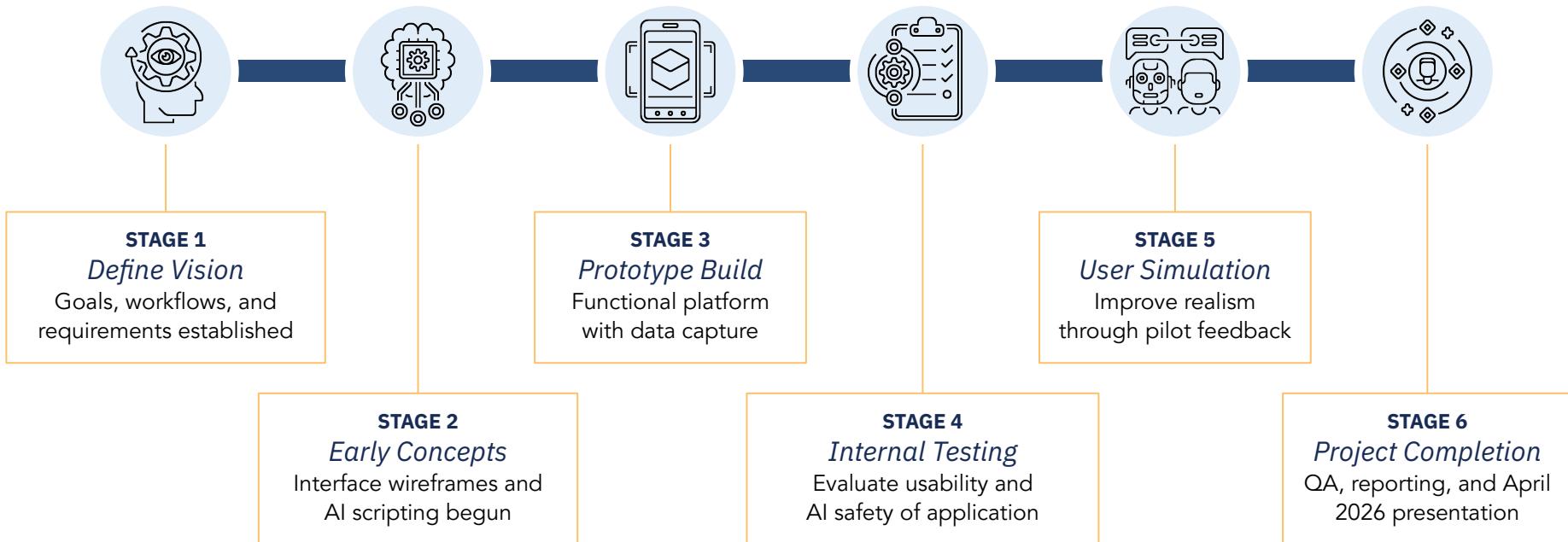
The persistent gap between research and practice in cancer care is driven in part by limited integration of evidence-based clinician communication practices into routine care, despite decades of proven training approaches. Developing scalable experiential communication skills training solutions—beyond resource-intensive live formats—could dramatically expand clinician reach and improve cancer outcomes at population scale. SPARC introduces a flexible, AI-supported approach that expands access while maintaining educational rigor.

## SPARC Training

- Practice anytime, anywhere
- Objective, real-time feedback
- Pilot includes 10 clinicians

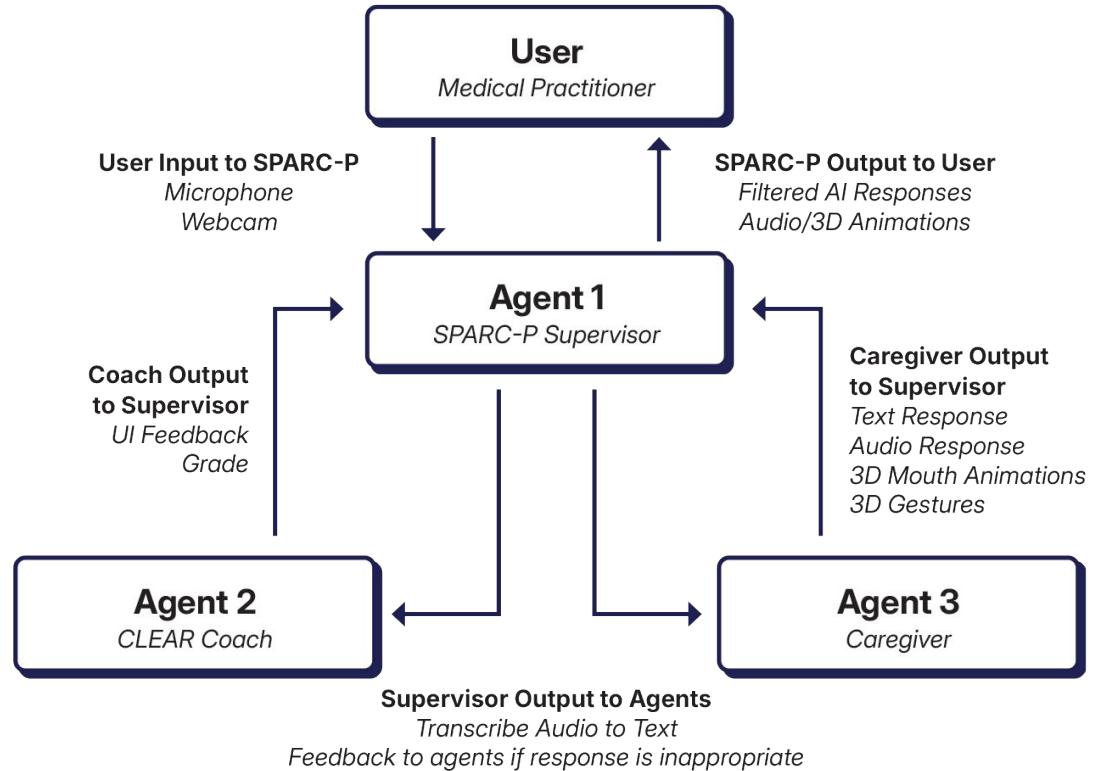
Traditional clinician training	SPARC AI-Enabled training
In-person standardized patients	Virtual patient powered by AI
Limited session availability	Asynchronous and online
Focus on observation and critique	Focus on reflection and skill-building

# Project Timeline



# How SPARC Works

SPARC-P uses a network of agents to simulate dialogue and provide feedback.



# The Development: AI Integration

SPARC uses advanced AI to simulate realistic patient encounters and provide instant, data-informed feedback. Speech, language, and animation technologies work together on UF's HiPerGator platform to create secure, scalable training that mirrors real clinical communication.

- Speech Recognition & Synthesis: NVIDIA Riva ASR & TTS
- Language Models: Fine-tuned OpenAI OSS 120B LLM hosted on HiPerGator
- Safety & Ethics: NVIDIA NeMo Guardrails & Multi-Agent reasoning
- Avatar Emotion & Animation: Reallusion and NVIDIA Audio2Face
- Data Processing: LangChain + Chroma for retrieval and contextual response generation



# The Development: 3D Modeling

SPARC's 3D avatars are designed to reflect authentic human emotion and behavior. Each character is modeled and animated to express empathy, tone, and body language—creating realistic, emotionally resonant encounters that enhance clinician engagement and learning.

- Character Design: Created in Maya, Blender and Unity for realism and accessibility
- Rigging & Animation: Facial expressions and gestures synced with speech
- Voice & Emotion: Integrate NVIDIA Audio2Face and Reallusion for lifelike delivery
- Design Intent: Diverse personas support inclusive, human-centered training



# The Development: UX Design

SPARC clinicians engage in realistic conversations, view feedback, and track progress over time. The design supports intuitive navigation, minimal distractions, and seamless integration of dialogue, reflection, and skill evaluation.

## Web-Based Access

Simple browser interface  
for any device

## Real-Time Feedback

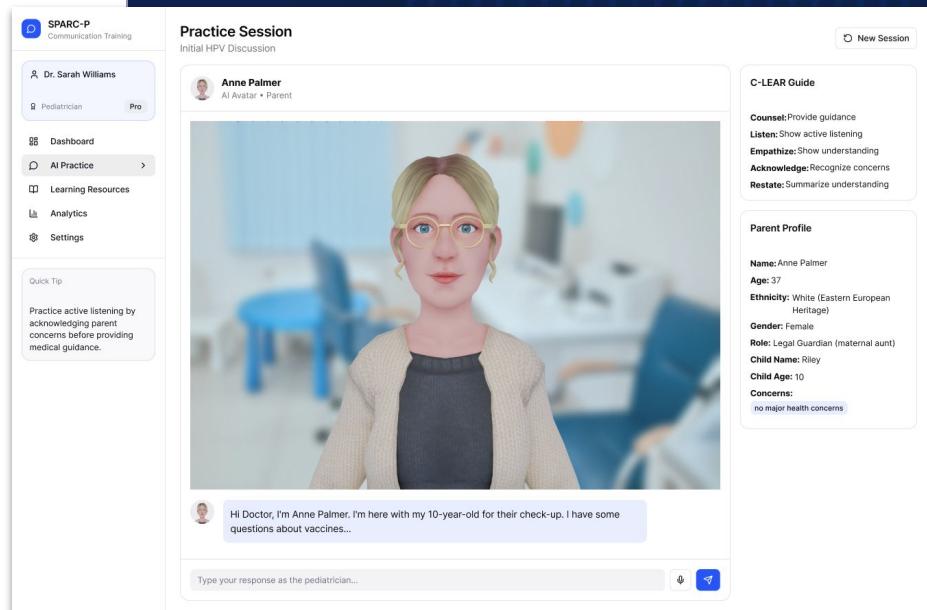
Scoring and guidance  
during sessions

## Reflection Dashboard

Summaries and  
performance insights

## User-Centered Design

Streamlined layout tested  
for clarity and ease of use



# Meet the Team



**Carma Bylund, Ph.D.**  
*Co-Principal Investigator*



**Jason Arnold, Ed.D.**  
*Co-Principal Investigator*



**Macy Geiger, Ed.D.**  
*Learning Experience Design*



**Eve Kung**  
*Front End Development*



**Jay Rosen**  
*AI Engineer/Development*



**Stephanie Staras, Ph.D.**  
*Co-Principal Investigator*



**Kayla Sharp, MSM**  
*Project Manager*



**Jon Walker**  
*Web Development*



**Rachel West**  
*3D Modeling*



**Kennan DeGruccio**  
*Standardized Patient Educator*



# Thank You

We appreciate your interest in the SPARC project and our work advancing AI-supported clinician communication training.

To learn more or connect with our team, scan the QR code below.

